

**THE ARBITRATION OR APPRAISAL OF THE VALUES
OF PUBLIC UTILITIES**

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THE ARBITRATION OR APPRAISAL OF THE VALUES OF PUBLIC UTILITIES.

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The lapse of the franchise periods, after which various municipalities have reserved the right to purchase, and the expiration by limitation of water works franchises and other franchises for public utilities, together with the popular wave in favor of municipal ownership of such properties that is now sweeping over the country, is bringing the question of the appraisal or valuation of such properties and of vested or expired franchise rights very prominently before the public, and is making the questions involved of very great interest to the officials representing such properties, to municipal officers and to engineers.

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The writer, having been called upon to take part in various appraisal proceedings, both as an appraiser and as an expert witness, has been forcibly impressed with the apparent lack of understanding of the nature of such proceedings, both by the officials of such companies and by municipal officials, and judges that a discussion of these matters at this time may not be inopportune.

The terms "Arbitration" and "Appraisal" are in many franchises used without proper understanding of the significance of the terms employed.

"Arbitration Proceedings" rightly understood constitutes proceedings by the results of which both parties are bound, and from which there is no appeal, unless the decision rendered is fraudulent, or has been erroneously based on conditions not included within the limiting conditions of the agreement or contract on which the arbitration is based.

An "Appraisal" is the determination of values by one or more parties duly appointed under franchise requirements, or by agreement of the parties thereto, and the result of the appraisal may or may not be binding on either or both of the parties.

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The nature of the arbitration of such questions or the appraisal in such cases is the determination of the values of property, franchise and vested rights, which may lie under a given franchise, and which are to be determined by such procedure.

In most cases the scope of the inquiry is limited to a greater

or less extent by the franchise, or by an agreement to arbitrate which may have been entered into by the parties to such franchise or to such agreement.

In other cases from the obscure wording of the franchise or agreement the scope of the inquiry may be more or less uncertain, and the duty of the arbitrators or appraisers may be both to define, at least for their own purposes, the scope and meaning of the articles under which the findings are to be held, and to appraise the value of the property and rights thereunder.

APPOINTMENT OF BOARDS.

Boards of Arbitration or Appraisal are commonly composed of three or five persons, to be appointed in a manner provided in the controlling instrument, and of qualifications sometimes specified therein. It is usually provided that they are to be "disinterested parties," sometimes that "they shall not live within the city or county from which the proceedings originate." In the case of a board of three, one is usually to be appointed by each party to the proceedings. In the case of five, two are usually to be so appointed by each party. The members of the board so appointed have usually to meet and to appoint the remaining member of the board, who, in accordance with the agreed basis of appointment, must be "acceptable to all the members appointed by the parties to the appraisal," or "acceptable to a majority of the members appointed by the parties to the appraisal," or in the event of the failure of the members of the board to agree, the remaining appraiser is sometimes specified to be appointed by some court of local jurisdiction. In some cases the professional status of the members may be specified. In the franchise for a combined water and light plant in Indiana it is specified: "The said grantee or assignee and the city shall each appoint one person, and the two appointees shall appoint a third, and the three persons thus chosen, two of whom are to be hydraulic engineers and one an electrical engineer, shall constitute a board to determine, etc."

In other cases, they are to be "disinterested persons," and may be business men, lawyers, or persons of any other line of business, or of no business or knowledge whatever, as the parties to the appraisal may see fit.

In the appointment of such appraisers, assuming that a just and equitable finding is desired, it is undesirable to select for members of the board, parties who are biased or prejudiced, or who have through other connections with the works or locality passed directly or indirectly on the value of the works, or the rights under the franchise, or who, for personal reasons,

have opinions to maintain, and are therefore not subject to the influence of such facts and evidence as may be presented to the board.

The board should come fresh to its labors, and should be so selected as to determine the true, equitable and just valuation under the instrument under which the board is created.

It should also be recognized that the appraisers should not and cannot be, from the nature of their duties, attorneys for the parties from whom they receive their appointment, and if they assume the attitude of attorneys they are not fulfilling the duties which it is the ordinary meaning and intent of the agreement that they should fulfill. It is the duty of each member of the board to appraise the true and just value, to strive for justice and equity, and not to act as an *ex parte* advocate.

There are unfortunately, however, no general laws or regulations which determine the character of the board or the attitude they shall assume, and commonly, if either party prefer to trust to the presentation of *ex parte* evidence before a board composed of members not qualified by their training to judge of values in the line of the arbitration, but to whom evidence of such value must be presented, or composed of members who will assume the *ex parte* attitude of attorneys, there is usually no method of preventing such choice, unless the franchise itself so specifies. Such a membership may seem desirable to a company whose plant is seriously deteriorated, and who rather trust to *ex parte* evidence than the knowledge of experts, or to a municipality that prefers to receive undervaluation by evidence more or less questionable, than to obtain an actual, true valuation by disinterested experts.

DUTIES OF APPRAISERS.

In any event, it is the duty of the Board to meet and organize and to make an appraisal under the terms of the franchise or agreement.

In the absence of other specified method of procedure, the Board are to view the property to take such evidence as they may deem necessary or desirable, and on the knowledge so acquired to determine the valuation to be placed on the holdings, property, rights, privileges, franchises, etc.

In the fulfillment of their duty, the Board usually have the right to secure such evidence as they may desire to make clear to them the conditions, values, rights and privileges on which the appraisal is to be based. In some cases the Board itself is organized under oath, and has itself the authority to summon witnesses, and to examine them under oath. In other cases,

the Board has no authority to require witnesses to testify under oath, or to compel their attendance or evidence, but can only request such attendance and judge the nature of evidence from the character and bearing of the witness.

EVIDENCE.

The personnel of the board will largely control the nature and amount of the evidence which it is desirable to submit.

If the board be composed of Expert Engineers, familiar with the cost and nature of the plant under consideration, or of other persons familiar with the details and expense of the construction on which values are to be set, it is unnecessary and undesirable to offer evidence on the usual and ordinary details of such constructions, as these facts can be left to the knowledge of the Board itself, and such evidence is superfluous and of little or no avail.

On the other hand, if the Board be composed of parties unfamiliar with the details and cost of such construction, it is desirable and necessary to show by expert evidence the cost and value of the works in details, so that the Board may determine an equitable valuation from such testimony.

In case the Board is not composed of experts, the amount and class of evidence on the valuation of the property and rights will depend on the nature, extent and value of the property and rights on which a valuation is to be placed.

Besides the detailed evidence, the nature and amount of which will depend on the personnel of the Board, there is other evidence which should be prepared and submitted, in all cases.

EVIDENCE ON THE PART OF THE COMPANY.

It is usual and perhaps natural that the owners of the works to be appraised hesitate to present a detailed schedule of their property, rights, conditions, operating expenses and income, often feeling that these are personal matters which they do not desire to make public, and which they hesitate to present. It is frequently suggested that as the purchaser is the active party or the "plaintiff prosecutor" under the agreement, and the owner is the defendant, the purchaser's case should be presented first. Much of this is undoubtedly true. It is undoubtedly undesirable to make private corporate business conditions public, and while it is often impossible for a Board to compel the presentation of such evidence, it is without doubt in almost every case, inexpedient for a company who may be compelled to sell under such an appraisal, to refuse such evidence. If evidence, which is undoubtedly in the possession of either party,

is requested and refused, it is fair to assume that such party fears the presentation of such evidence, and such refusal will work to their disadvantage. Unless the conditions are so unfavorable that such conclusions are liable to prove of greater advantage to the party refusing such evidence than a knowledge of the actual facts, such evidence should not be withheld. The order of presentation of evidence is immaterial with most Boards of this class. The evidence is not usually restricted so but that at any time evidence in rebuttal or additional evidence can be admitted. Such a Board is not usually bound by court rules, but can admit such competent evidence as they see fit, and at such times as they desire, and can give the evidence such weight as its nature seems to warrant.

The logical and necessary sequence for the presentation of evidence in such cases, is the preparation on the part of the owners, of a detailed schedule of physical properties, and a statement of other rights, conditions and facts which may modify or assist in the clear understanding of the values to be appraised. The schedule, of physical properties at least, should be submitted to the purchaser or to his representative and, of preference, prior to the meeting of the Board, so that the schedule may be examined and verified, and an agreed schedule submitted for the consideration of the Board. This schedule should present physical facts which can be verified to the extent needed, and no difficulty should be experienced, or is commonly experienced in securing an agreement as to facts, when the necessity of such a schedule is clearly understood and appreciated. Such an agreed schedule greatly simplifies the work of a board of appraisal, and if not submitted, it at once becomes the duty of the board to determine for itself a schedule of such property. It will at once be apparent to all, that if parties unfamiliar with the property or plant attempt to make such a schedule, they are of necessity, greatly hampered by their lack of knowledge, and can hardly fail to overlook many things which the representative of the owner, with his detailed knowledge of the works, would certainly include. For this reason, it would seem that the interest of the owner makes it clearly desirable for him in his own interest, to furnish a complete inventory and to aid the representative of the municipality in his attempt to verify such inventory, in order that all features of the work may be acknowledged and presented to the Board for valuation.

Any conditions or property in such an inventory which are questioned should be eliminated and presented to the Board

in a separate and distinct schedule so that an inventory acceptable to both parties may be furnished the Board as a basis on which to begin the appraisement.

On such items, in the schedule which may be presented, which may be in controversy, it is the duty of the Board to examine, determine and pass judgment. With an expert Board, ordinary and usual depreciation need not be dwelt upon, but with other arbitrators evidence or such conditions must be presented. It is, however, competent for the owners to point out conditions which are unusually favorable to the long life of any portion or portions of the works. It is also necessary and desirable that evidence on the value of any unusual feature of the work be presented, such as special or unusual machinery, difficult construction, etc., also that evidence be presented concerning values on such portions of the property as depend on such local conditions as the Board may not be cognizant, such as land values, cost of labor, local materials, fuels, rights, privileges, etc.

In general, therefore, it may be stated that the owners should be prepared to present such evidence as the personnel of the Board and the local and physical conditions, and the peculiar or special construction of the works demand.

EVIDENCE OF THE MUNICIPALITY.

The municipality, from the nature of the case, cannot present a complete line of evidence of itself. It usually has no power to enter on and examine the details of the works and property, and must of necessity await either the action of the owners or at least of the Board of Appraisal.

The case of the city will usually consist of the presentation of evidence of any particular and excessive depreciation in the works in question. The existence of unused, unnecessary or defective parts or features of the same, and of rebuttal of evidence introduced by the owners showing values believed to be excessive or unfair. Evidence to show the quality and condition of the service rendered is often competent, and any special evidence which tends to make clear the conditions under which the plant was constructed, maintained and operated can often be introduced to advantage.

It is frequently the case that in the intervening time since the plant was first installed, various questions have arisen and conditions have prevailed which have a bearing on the valuation of the plant, and such matters should be considered by the parties to an appraisement, and presented whenever they seem to have a bearing on the points involved.

THE PREPARATION OF THE CASE.

Much time can be gained and often much expense avoided by the employment of expert service in the preparation of the case for both the company and the municipality.

A Board of Appraisal is, of necessity, formal, and, for that reason more or less unwieldy, and if they, as a board, attempt to collect and invoice the physical or other features of the work, the cost of such invoice will often prove excessive. Both the owner and the municipality will often greatly advance their interests and cheapen the cost of appraisal if they will employ experts to work up the features of their case, and to represent them before the Board. Experts should be employed for this purpose who are thoroughly familiar with the usual character and nature of the proceedings involved. Such an expert can examine the property, plant and records, interview officials, and gather in a brief time and from a mass of material and evidence, much of which may be undesirable and incompetent, evidence which it might take a board days to sift out, or which such a board might not and often would not discover or ascertain at all.

BASIS OF VALUATION.

There are a number of considerations on which the valuation of a plant may be based and they are usually specified more or less distinctly in the franchise provisions or arbitration agreement, or may depend on other conditions of the arbitration proceedings.

The features to be considered may include one or more of the following:—

1. Original cost of works.
2. Cost of reproduction of the works.
3. Depreciation.
4. Operating or "going" value.
5. Valuation of franchise, rights, privileges or concessions, and of business acquired or prospective.
6. Valuation for salvage.

The first consideration above listed assumes a valuation based on the original investment or a return of the money actually invested in the works. This basis may be just and equitable under conditions where the plant is to be assumed on or soon after completion. It may also, under certain conditions, have a direct but partial influence on valuation considered together with other conditions.

The second consideration is similar, except that such a valuation is based on present prices, that is, prices prevailing

at the time of appraisal, or on the cost that would be involved in the reproduction of the works at the date of the proceedings for appraisal.

The question of depreciation is also usually considered, and the physical value of the plant, either based on first cost, or cost of reproduction as modified by use, and the effects of time are considered.

Under the fourth head is considered the fact that, whereas a plant constructed and completed and ready for operation would have a certain value due to prospective consumers, but with no consumers using the output of the plant, yet a plant of equal physical value but with consumers actually utilizing its product has a value due to that fact and due to the fact that it is in actual and successful operation and that it has a business worked up, and which constitutes an asset in the consideration of the plant value. This feature is often termed the "going value" or "operating value" of the plant, and has no reference necessarily to the franchise rights, or to the dividend paying condition of the plant. The question as to whether or not this consideration should receive attention in plants of which the franchise has expired is perhaps open to some discussion, and may depend on the wording of the franchise agreement for appraisal and sale.

The decision of the United States Court in the Kansas City case would seem, however, to clearly establish a "going value" apart from any "franchise value" which must be considered, unless the consideration is clearly prohibited by the terms of the franchise, provisions or the articles of agreement.

Fifth. The franchise of the company is its right or privilege to do business in the public ways of a city, and may be more or less restricted, and curtailed, or extended and perpetuated by the terms of the instrument, and when considered on an appraisal the value must depend on the wording of the agreement. As the franchise determines the rights or privileges of the company to do business in the streets of a community, its value must of necessity depend on the nature and amount of the business both acquired and prospective, and when considered, it must be valued in relation to the growth and nature of the population to be served and the limits set by the franchise and the local conditions.

All rights, privileges or concessions have a value relative to the community concerned, and a value derived from the nature and extent of such community and of its possible future development.

The consideration of a plant as a financial investment is most largely and clearly a franchise value.

The right to perform the service of supplying gas, water, or other service to a community is the right on which is based the financial value of the works, or their value as a profitable investment, and if the franchise rights are expired, or are not to be considered, this basis of valuation is often eliminated, although under certain wordings this is more or less uncertain, and is usually a disputed point, unless definitely and distinctly eliminated by the appraisal agreement.

The sixth head mentioned is an extreme condition and considers all rights forfeited or expired, and the works valued only on the salvage basis, or the value which could be obtained by their sale for other purposes. It is seldom that such a basis is seriously considered.

The true value of a plant, even when determined under the limiting conditions of the appraisal clause of a franchise or other appraisal agreement, usually partakes to a degree at least of all of these considerations. The degree to which they should be considered must depend on the form of such agreement. Justice and equity under the contract terms should be the spirit with which all such proceedings are approached.

THE FINANCIAL QUESTIONS IN WATER WORKS VALUATIONS.

BY JOHN W. ALVORD, CONSULTING ENGINEER.

The large number of water works plants originally built in this country by private capital is lessening in number year by year, as the desire for municipal ownership stimulates cities to acquire such plants, either through the purchase provisions in the original franchises, or through special negotiations, or by reason of the expiration of the franchise itself. This general movement on the part of the American cities to acquire municipally operated plants has given rise to very many interesting financial questions as to the proper and just returns to be made to the original investor or owner of such securities.

It often happens that water works men and hydraulic engineers, skilled in the construction and designing of water plants, are selected as arbitrators under some special clause of the franchise, or are requested to present the claims of one or the other of the interested parties. Such men are unquestionably well qualified to judge of the physical value and depreciation of the plant which it is desired to purchase, but it is observable that not every engineer or water works man charged with such responsibilities, has clear and distinct notions of the financial questions involved.

The usual method is for an arbitration board to meet, and, after careful inspection of the plant, to proceed to estimate its cost in detail, at the prices for materials and labor prevailing at the time of such appraisal. This being accomplished, the depreciation is then estimated. Here the skilled water works man or hydraulic engineer is at great advantage; they are the men best fitted to know intimately from practical experience the life of the various parts of the plant under varying conditions. But from this point on the arbitration board faces problems, which necessarily fall under the head of financial, rather than engineering. The main question of this kind which invariably arise are three in number, and may be described as follows:

First: What is the business value of the plant built up as it has been by the energy, perseverance and solicitation of the officers in charge, as distinct from the inert plant itself, without customers or connections? This feature of value has been aptly termed by the judge in the Kansas City case where its

distinguishing characteristics were pointed out as the "going value."

Second: What is the value of the franchise, if any, and how shall it be computed?

These two questions cover most of the ordinary cases which occur to the ordinary board of appraisal, and call for the highest class of expert financial ability. It is here that many water works men do not meet the requirements of the good arbitrator. They are careful and conscientious in the determination of the value of the pipe and machinery and other appurtenances of the plant, and they may have definite and valuable ideas drawn from their experience of the amount of depreciation which should be deducted therefrom. But upon the larger financial problems involved in a just estimate of the going value and franchise value, if any, they are often at sea. Nothing usually in their former experience has given them clear ideas how to justly apportion these elements of expense, unless they have made a special study of financial problems in general and water works financing in particular.

A third class of financial problems is often encountered which more commonly occurs in court cases; this is the problem of adequate return upon the property in the form of hydrant rental or rates to consumers. This class of problems has been and will be specifically encountered under a recent decision of the United States Supreme Court in the Illinois cases, where it is determined that cities have the right to regulate water rates, even though fixed apparently by contract in the franchise, provided a fair return upon the capital invested is allowed. This latter question is perhaps the most difficult to deal with and properly comprehend of all those heretofore enumerated. Taking up these questions in their order I have thought it desirable to briefly outline to this association some of the recent practice as observed in the action of arbitration boards and courts.

I. THE BUSINESS VALUE.

The element of "going value" has been before described as the element of growth in the plant irrespective of its physical condition. It is comparable somewhat to that indefinable quantity known in other lines of business as "Good Will." Nevertheless it is something more than good will in water works business, as it represents what might be more aptly described as "connected good will," that is to say, the acquisition of customers who have invested considerable sums in actually connecting their premises with the plant of the company, and

provided appliances for the use of the water which it can deliver. In new works it is often found to be the case that a large portion of the population is not accustomed to the use of water under pressure, and do not realize the saving in labor, and the improved sanitary conditions that will result from the use of much larger and more generous quantities of water than they have heretofore considered necessary. This prejudice, if it may be so called, or indifference, if that term is preferred, must be overcome by the water company which wishes to thrive and increase its business. Inducements must be held out to those citizens who are backward about adopting an improved water supply, and in various legitimate ways energetic business men will build up a clientage for the works which represents a considerable amount of invested capital, both of cash and business acumen. In the case of the National Water Works Company, of New York, vs. Kansas City, in the Circuit Court of the United States for the Western District of Missouri (Fed. Rep. 62-853), the question of the value which attaches to the water works plant because of its being a "going concern" in use and earning, was brought to a clear cut issue, and it was decided that such value was properly a part of the plant, which should be added to the cost of reproduction. This decision has been now well nigh universally accepted by water works arbitrators as well settled, and is applied whenever this consideration is not specifically excluded by the terms of the franchise or agreements between the parties in interest.

It is not intended here to discuss the merits or demerits of this decision in that particular case or its justice in general application, but rather to point out a method for rationally applying it to actual conditions. It was the writer's belief that the best and most rational method of determining the going value of an ordinary plant was first pointed out in the purchase of the Dubuque water works.

Briefly described the method was as follows:

It is assumed that a new plant will be constructed, the inception of which is coincident with the data of arbitration. Such new plant is to be of an equal capacity with the older plant under consideration, and a due allowance of time in which to construct this new plant, and the necessary capital to be invested in it from time to time is estimated. At the completion of this new imaginary plant, it is assumed that it commences to obtain business in that community from those who are not previously accustomed to the free use of public water, except in a general way: that it is to require the business

ability and consequent increase in number of customers which the earlier and older plant went through within the early years of its existence. An assumption of the amount of business thus created for each year for a period of years in advance is carefully computed and estimated by the board of arbitrators. The losses of interest upon capital invested are duly fixed, as well as the first absence and later addition of revenue from hydrant rentals, and a table is prepared showing each year, the total business developed and the total losses, if any. After this is completed a forecast is made of the business of the older works for the same period of time in the future that it takes the business of the new works to equal the business of the old works. If the business of the old works is found to be a growing one it will be a longer period that the new works will require to overtake it than will be the case if the business of the older works is stationary or decreasing. In general, the differences which might be called the debits and credits of this new imaginary plant and the debits and credits of the older working plant are reduced to their present worth at the time of appraisalment, and an estimate is made up which will adequately represent the financial advantage which the old works (already fully equipped and in running order and having a large number of profitable customers) will have over the new works, where everything must be built and customers secured.

It is necessary in making this suppositious estimate of the new plant to consider it in no way a competitor of the older works; there is not supposed to be competition between the new and the old, but it is left to the experience of the board of arbitration to consider how long it would take the new company to build new works, and build up business for the new works, until they have overtaken the business of the old company should it continue to occupy the same territory.

It is observable, of course, at once, that such a method requires experience in financial matters, as well as experience covering the financial management of a large number of water works plants. Where such an experience is not brought into play in boards of arbitration, there is usually to be found guesses of the wildest character as to the "going value" depending upon the point of view of the arbitrator, and often that point of view may seriously modify a "guess" when it could not seriously differentiate from a result arrived at through a rational method of computation.

The writer has applied this method in a considerable number

of cases of a varying nature, and has observed its application in other cases outside of his experience, and believes that it is coming to be understood as being the rational way of determining this perplexing question to the satisfaction of the expert who may be called in, and the more wide the experience of the expert the more just will be the application of the method as a rule.

II. THE FRANCHISE VALUE.

The second item which is to be considered in fixing the value of the water plant is the question of the value of the franchise, if any. This is an exceedingly difficult financial question, and is first of all often excluded from the consideration by the terms of the franchise itself. Of course, it is not a consideration in cases where the franchise has expired. But where negotiations are under way for amicable adjustment irrespective of the opportunity of purchase offered by the terms of the franchise itself, or where it is not excluded from consideration by the terms of the franchise, it becomes a problem of some difficulty. There are two methods by which it may be estimated. First: The physical value of the plant and its depreciation and going value may be entirely neglected, and the entire valuation of the plant fixed upon the basis of its earning power throughout the remaining life of the franchise, and its probable value for sale or franchise renewal at the same time. It is evident that it cannot be considered as a revenue producer for all time to come, but the time in which it may earn revenue being limited, the probable net revenue for each remaining year of the franchise life must be estimated and capitalized at a sum which, if put at interest, would pay such yearly revenue and extinguish itself at the end of the franchise period. To this must be added the value of the plant as physical property at the end of the franchise period giving due consideration to what it may be worth at that time to the city as possible purchaser or parties obtaining a renewal of the franchise, or the cost to the original company for the renewal of its franchise.

Of course, a plant which is not properly managed, and which has wasteful expenditures in its operating department complicates the situation, and it is evident that due allowance must be made for a businesslike control of operating expenses.

The question of the element of value in the physical plant at the termination of the franchise is also a difficult one. In many instances radical changes in the water supply are expected by the citizens. Purification works may be demanded, or

expensive alterations may be insisted upon, which will have a great bearing upon the element of value of the plant to the city.

A second method of determining franchise values, if any, is to proceed first to estimate the physical value of the plant as shown by its cost of reproduction, less its depreciation. Secondly, to compute the going value. Thirdly, to determine whether the net revenue is paying interest on a capitalized value greater than that indicated by the sum of the physical value and the business value added together. If such capitalized value is less than the sum of the physical and business value, then there is evidently no additional value to the franchise as such, but if the income of the plant capitalized is found to be greater than the sum of the physical and business value, it is evident that in the majority of cases there is to be added a third element of value, created by the amount which the franchise itself is worth over and above any other values which may have been estimated. To determine the present worth of such an added franchise value, the excess income over and above that necessary to cancel all other obligations (including the payment of interest upon the sum of the physical and business values), should be estimated throughout the remaining years of the franchise, and the several sums should be carefully reduced to their present worth and added in as a portion of the final value of the plant.

Now, all this seems somewhat complicated, and indeed is complicated not only in the abstract, but by local considerations, and by the language in the individual franchise. But the writer is convinced from such experience as he has had that the above outline furnishes a rational and just method of determining such values, and is capable of being carefully studied and worked out in each case indicated.

It may be objected that hydraulic engineers are not expert financiers, and that such questions are not within their experience, but it is evident that the vast advantage that hydraulic engineers and water works men possess in their knowledge of the physical parts of a plant, as well as its business management, will always give them preference in the minds of those interested, for the position of arbitrators and adjustors, and the occasion will therefore of necessity arise for a certain class of such men to further qualify themselves by careful study of these financial questions so as to be able to settle them justly and fairly.

III. THE FAIR RETURN.

The third class of financial questions often arises in connection with what is known as hydrant rental. It is sometimes the case that the franchise is quite silent upon the allowance to be made for additional hydrants, after fixing the amount to be paid for the first installation. Often the franchise states that the value of the additional hydrants will be fixed at a *fair rate*, though not specifying by what manner or means such rate shall be determined. A great many efforts have been made to show what the average hydrant rental is in different communities, or in different states, or in the country at large, but about all the satisfaction that can be derived from such tables is the opportunity to observe that there is a wide variance in the amounts paid for hydrant rental at different places and under different circumstances.

Now, one view of this problem is that hydrant rental, although apparently a specific payment for a specific service, is in reality a bonus given by the city to the water company as an inducement for it to locate, operate and maintain its works, it being found that private capital cannot afford ordinarily to establish works and operate them for the revenue derived from domestic consumption alone. When this is fully understood, it will be perceived that consideration of the hydrant rental question is indeed but a consideration of the more important question as to what may constitute a fair return to the water company upon its capital invested.

Another view of the hydrant rental problem is that it is a specific payment for a specific service, viz.: for means of extinguishing fires, and as such it should be made proportional to the service rendered. This view, it can be shown, will lead either to an absurdity or to the precise method of considering hydrant rental as a bonus. For if fire service is to be paid for in proportion to the service rendered, millions of dollars must be used to measure the possible losses due to the absence of suitable mains and fire hydrants in a city of even the ordinary size where the actual investment for fire prevention may be measured in thousands of dollars. A few moments' reflection will convince any one that such a measure of value for fire hydrants is out of the question.

But it is often assumed that the measure of value of fire hydrant rental is the investment necessary to provide mains of a suitable size, and pumping machinery of sufficient capacity, and other appurtenances sufficient to provide fire protection rather than domestic consumption. If it is attempted to carry

this theory into practice, we must estimate the cost of two separate works: one proportioned for domestic service only, and the other proportioned both for domestic consumption and fire service, the difference between the two representing the cost of increased capacity necessary for fire service. But the service cost not only depends upon differences in first cost, but operating expenses, interest, sinking funds, and all other fixed charges as well. Therefore it is necessary to know the "*fair return*" upon each of these hypothetical works as well, in order to arrive at the true investment for fire protection alone.

Therefore, it will be seen that to consider hydrant rental as anything else than a portion of *fair return* is to involve oneself in a complicated problem where a simple problem will answer better.

It is indeed too often true that hydrant rental is not fixed with the consideration in mind, that it is only a portion of the fair return, but it does not vitiate the final conclusion that this is the real problem at issue. It has been the writer's fortune to study this question in several recent important cases where it was in issue, and so far as he has observed the problem, it is clearly not a question of the remuneration to the company for special services, but a question of the fair return to the company upon its invested capital after considering it in the possession of certain private revenues and privileges which assist in rewarding that capital to a limited extent.

This broad method of treating this question eliminates many difficulties which have heretofore surrounded the question of hydrant rental.

Another class of questions involving the fair return is brought up by the recent decision of the Supreme Court in the Illinois cases before mentioned. If we must assume, as it would seem from this decision that we must, that a franchise for water supply is not a contract in so far as the fixed rates therein mentioned are concerned, and that city councils have the right from time to time to readjust such rates, as they may see fit, providing always that in determining on such revised rates, a fair return be made upon the capital invested in such plants, then the question as to what is a fair return becomes an exceedingly interesting and important one, not only to the investor, but to the municipality, its citizens, and the courts as well.

What, then, is the fair return for capital invested in a water works franchise, and how shall it be determined?

It is evident that municipal plants do not furnish sufficient data for us to determine this question, for municipal works as a rule do not consider interest on original investment unless represented by outstanding bonds. Municipal works provide no sinking fund such as has been described in this paper, nor do they pay taxes. As a rule, improvements in well established municipal works are often paid out of revenue and do not show as increased capital expenditure. Discarded machinery or other appliances in municipal works is never written off as depreciation, but the total cost or investment, if ever known at all, is known as a constantly increasing sum which represents all classes of investment and renewal. Municipal works are, therefore, quite useless as a guide to the fair return on capital invested.

In the author's opinion the fair return will be found under natural conditions to consist of the following items:—

- 1st. Interest on capital invested.
 - (a) On bonds and their discount or renewal.
 - (b) On cash advanced by the promoters.
- 2d. Proper and reasonable operating expenses, including fair salaries for good business management.
- 3d. Maintenance and renewals to make good not only actual depreciation but necessary alterations.
- 4th. Taxation, if any.
- 5th. A sinking fund to make good possible loss in value of plant at end of franchise period due to forced sale or altered requirements which decrease value of some portion of plant.
- 6th. A reasonable profit.

The method of procedure believed by the writer to be the best for the purpose of deriving the above items of fair return is to take into consideration the whole investment and revenue producing power of the plant, and to determine its future revenue by comparison with its past history. After estimating the physical value of the plant less its depreciation and adding its business value, it should be determined if the franchise has any value by the method discussed under the second head of this paper, and if it has, the final value of the plant may be summed up from these three items.

Upon this final value as a basis should be determined in percentages the items of the fair return.

Interest. Interest upon capital invested in water works franchises generally commands a high rate, due to the shortness of the term of franchise, and often to the possibility that before the term is over altered conditions of supply may vitiate

the value of the works. A new source of supply may be demanded, or purification works may be desired, thus compelling before many years the investment of new capital and the obliteration of a large portion of the original values. The sentiment for municipal ownership, now common all over the country, prompts many communities thoughtlessly to try to depreciate the value of works in the hopes of securing them at advantageous rates, thereby engendering much bitter feeling on both sides to the controversy, and often succeeding in seriously depreciating the value of the security.

Interest on bonds should include cost of selling them and renewing them when necessary.

Operating Expenses. A large amount of practical experience is necessary to determine what are fair and reasonable operating expenses. Oftentimes plants are wastefully and carelessly managed, and the operating expenses are abnormally high. At times lack of suitable investment in economical appliances prevents economical operation. In some franchise plants salaries of the higher officers are abnormally high; in others they are abnormally low, due to the officers being stockholders, etc. Operating expense account in many plants often erroneously contains charges properly belonging elsewhere, such as maintenance, renewals, or even new investment.

Maintenance and renewal should be an amount which will keep the plant not only in good repair, but in such condition that it may be economically operated. Maintenance should make good depreciation wherever possible, but should not cover additions to the works such as would fall under the designation of "New Capital Invested." The line here is a hard one to draw in many cases, as for instance, where a new main of large size replaces an old main of smaller size.

Taxes. Are generally made against water works after certain dates specified in the franchise.

Sinking Fund. The sinking fund should be such that it will make good all element of uncertainty. If the entire plant is certain to be sold to the city at the end of the franchise period, so that its cost is made good to the original investor, no sinking fund is necessary. But if the city may desire to secure the distribution system only, and will wish, perhaps, to locate a new pumping station, or develop a new source of supply, then the sinking fund should be calculated in a sufficient amount to make good the loss to the company upon the pumping station. Or, take another case where there is no probability of change in the system, or desire for a new or different water supply,

but where difficulties may be encountered in renewing the franchise, then the sinking fund should be so calculated as to cover all possible loss to the original investors produced by negotiations for new franchises, or for the necessity of selling to the city under pressure at the termination of the franchise.

Reasonable Profit. An element in the fair value of any plant is the return to the investor not only of interest upon that portion of actual cash which he has put into the plant, but a reasonable profit upon his money. Were water works franchises perpetual a reasonable profit might be a comparatively small one, and the interest to the investor might be comparatively low, but with water works investments in this country terminated as a rule at periods of twenty-five to thirty years, a higher rate of interest to the investor must of necessity be expected, than would be the case with a high-class security. This last element of fair value is of course the most difficult one to determine, but with considerable experience in the financing of new enterprises, a water works expert may, in any individual case, arrive at what seems to him to be a fair return under the local circumstances, together with the outlook as it may be at the time of appraisal.

In conclusion, the writer deplors the tendency in many water works appraisals for water works men and engineers to ignore the judicial character of their responsibilities. Too often it happens where a board of appraisers are appointed with certain members representing the city and the company, and the two sets choosing a third or fifth member, that the board as a whole fails to bring in a unanimous report. This is due usually to the partisan view taken by one or the other side who feel that the importance of representing their client's interest is greater than the importance of arriving at a just and fair valuation based upon the joint ideas of the board as a whole. Of course, where such tendencies are noticeable, it is indeed difficult to restrain them, and in certain cases the only plausible method of restraining them is to return them in kind, but this produces results which are disastrous to the reputations of water works men and engineers interested in such lines of work, and causes the outside public to feel that they are weak and unreliable in their line of business. The arbitrator, whether he is appointed by the city or the company, is in effect a judge, and as such it behooves him to take the very highest conception of his responsibilities.

Mr. Mead:—The financial questions involved in water works appraisals are exceedingly important ones, and will bear the most careful thought and investigation.

The speaker has in mind one particular question on which he thinks that often serious mistakes are made in appraisals. That is the question of estimating the amounts to be deducted from the cost of reproduction for deterioration.

It is a common method to estimate the value of some feature of the system on a basis of first cost, and then subtract from such cost the amount of estimated depreciation, leaving the net or actual depreciated value as the result. The depreciation is often ascertained by assuming a certain length of life for the particular item. For instance, in the case of iron pipe, the length of life is often assumed at 100 years, then if the pipe has been in use for twenty years, 1 per cent. is deducted for each year of use. Supposing that the life is correctly assumed, I believe the true representation of the depreciation is the amount, at the date of the estimate, of an annuity or sinking fund, with accumulated interest, which, if set aside annually, beginning at the time the construction is first completed, will reproduce the value of the pipe at the end of the useful life. Such a fund should, of course, be calculated on the basis of a low rate of interest. For example, if we estimate the sinking fund interest at $3\frac{1}{2}$ per cent., the life at 100 years, and the time expired at twenty years, the amount of the sinking fund at the end of twenty years would be \$3.27 on \$100.00, or about $3\frac{1}{4}$ per cent. instead of the 20 per cent. as ordinarily estimated. There are, of course, other features to be considered in valuing any portion of the work besides absolute length of life. This method of estimating depreciation was first brought to the speaker's attention by Mr. Benezette Williams, of Chicago.

The speaker is not able to agree entirely with Mr. Alvord in some of his statements. He does not believe that maintenance should or can make good depreciation. Maintenance must include those incidental and accidental features of ordinary wear and tear which are encountered in the operation

of any plant, and are more in the nature of supplies and repairs than of depreciation. Depreciation should be covered by the sinking fund account, an annuity being set aside for the sinking fund each year sufficient, with accrued interest, to replace the plant or any feature of the same at the expiration of its life. The speaker does not think a sinking fund should make good all elements of uncertainty. Every business proposition embodies the elements of uncertainty, and while it is but just and equitable to provide for all reasonable depreciation and deterioration in the plant, it is not equity to provide for remote possibilities and contingencies.

GOING OR OPERATIVE VALUE.

In regard to the method developed at Dubuque, of estimating the going value of an operating plant, the speaker agrees with Mr. Alvord that it is a consistent and logical method, and it is one that the speaker has applied in a number of cases. It should be observed, however, that the method is by no means an exact one, and must necessarily lead to a very great divergence in opinions as to the "going value," in accordance with the assumptions on which it is based. These assumptions may differ to a very great extent, and the results may differ greatly, according to their application, and the position assumed by the estimator. Unless this method is used with the greatest care, results may be arrived at which may be exceedingly unfair, either to the company owning the plant, or to the municipality purchasing it. Its very logic is an element of danger, for if clearly presented from a biased stand-point to one previously unacquainted with its application, and if accepted without careful analyses it may lead to very unjust conclusions. If used, however, carefully and conscientiously with the desire to do justice to all concerned, it is a valuable method of estimating going value, and the only logical one with which the speaker is familiar.

Besides the considerations mentioned in the paper, which should be considered in connection with this method, the speaker believes it is necessary also to consider the part which a

municipality has borne in the development of a plant. If it has been aided in its growth and development from its first inception by the receipt of unusual encouragement in the form of excessive hydrant rentals, or otherwise, which the conditions would not otherwise warrant, the municipality should be regarded as having assisted in the development of the plant, and due consideration should be given to this feature also, and the municipality should not be deprived of the benefit of its early and unusual assistance by the award of an inequitable "going value," which the municipality itself has assisted to develop.

THE FIXING OF VALUES, RATES AND "THE FAIR RETURN"

In fixing the value, rental, rate or fair return for any construction, or operating plant, various considerations must be carefully examined. Ordinarily, under usual business conditions, such values are fixed by the laws of supply and demand, and adjust themselves in accordance with such laws. When, however, such values must be fixed by arbitration or appraisal or by the courts, the underlying principles must be closely scrutinized in order to secure justice and equity.

The value of any structure or service partakes both of the price at which the seller can reasonably afford to receive and what the buyer can reasonably afford to pay for the property or service, rather than on an intrinsic value of the same to the buyer. For example, the services of a physician or surgeon, if, by reason of their promptness, may effect the saving of life, may be often of inestimable value to the patient or his family, and if he were otherwise to be deprived of such services he might be willing to pay anything within his power, consequently, if such services were based on their value to the purchaser, they might be considered, in many cases, beyond price. Under actual conditions, they are based on what it is found a physician or surgeon can reasonably charge under prevailing conditions. The ability of the physician, the demand on his services, his expertness, are all-important bearings, and may increase the price beyond the average. Such reasons for

increasing tend to decrease the patronage of the physician for financial reasons, but to increase it on account of his ability, and the amount he actually receives is increased in direct proportion to his estimated value to the patients. This method, as a rule of practice in most of the affairs of practical life, results in a fairly equitable adjustment of the rate of charges for service of almost every description.

In quasi-public works, where a monopoly is created and no competition is possible to adjust such rates, and where such prices are to be fixed by arbitration or by the courts, such prices can only be adjusted equitably by the consideration of what others would or should charge under similar circumstances, or the price at which others would be willing to install a similar plant and render similar service, not, of course, under competition, but on the basis of a fair equitable business transaction.

In the case of the value of fire protection to a community, which is paid for in the way of hydrant rentals in a water works system, the fact of the existence of a hydrant at a certain locality, near valuable possessions, may save such possessions entirely from the ravages of fire, and the owner of the property might be willing, under unfavorable circumstances, to give half the value of those possessions for the necessary fire protection, instead of sustaining a total loss, and yet such a valuation would not be a just and equitable basis on which to value said hydrant rentals.

As a hydrant is frequently placed in new territory where the connecting mains do not supply private consumers, the minimum rental of the hydrant ought not, perhaps, to be less than sufficient to pay interest on the cost of the hydrant and a main sufficient in size to connect it to the system, together with the cost of maintenance and depreciation on such hydrant and main.

The rentals paid in other cities where conditions may be quite different is in no sense a means of value for a particular city, for conditions may be quite different even in communi-

ties closely adjoining. In one city the works may use a gravity supply, and the cost of service should be with such conditions comparatively low. In another city it may be necessary to raise water a great height, and the corresponding cost is much greater. The population and its relative density influences the cost of distribution. The cost of fuel, or the cost due to improper design, may influence the expenses greatly, hence the rental paid in various other municipalities can only have a very general comparative value.

The true basis of hydrant rentals must, therefore, be determined essentially on the basis of the price at which the service rendered can be fairly furnished at a reasonable price by the parties furnishing such service, and the price which the parties receiving such service can fairly pay for the same.

The basis of this is, practically, what can or would similar services of the kind be furnished to the community in question by responsible parties, and on a fair business basis, if the field equipped were not already equipped by the owners of the system?

Into this question enters at once all the physical and commercial conditions of the plant. Among the more important physical conditions are:

The cost of the plant.

Its cost of operation.

Its deterioration or depreciation.

The influence of the design on first cost, cost of operation, and depreciation.

The nature and extent of the service rendered.

Its efficiency as a fire protection.

Its reliability in time of peril.

Among the commercial conditions are:

Its prospects or realization of income from various sources.

Its acquired revenues, etc.

Every quasi-public plant should, when fully established, be on a paying basis, but holding, as it does, a monopoly, its income can, in Illinois, be limited to a fair return, as the Illinois

Courts, sustained by the U. S. Courts, have determined. At present, in the Central States, money on first-class security is worth, perhaps, 5 per cent. Water works and other corporation bonds must, however, draw about 6 per cent. to be readily saleable. It would, therefore, appear that the income which a quasi-public plant should be justly entitled to would be somewhat greater than this amount, so that capital would be naturally induced to venture into it. For this purpose, 8 per cent. or 10 per cent. net earnings might be considered a fair return on the actual valuation of the works, and as sufficient inducement to attract capital, this per centage varying somewhat, however, with the risks involved in each particular case. For example, if the works cost \$300,000, and have been maintained at an equivalent value by proper repairs and maintenance, their net income should be, perhaps, \$24,000 to \$30,000, above all expenses; that is, the plant should earn ordinary interest, and from 2 per cent. to 4 per cent. extra profit.

The annual cost so figured should be on the following basis:

I. Cost of operation.

Supervision and clerical expenses.

Labor.

Fuel.

Oil.

Waste.

Miscellaneous.

2. Annual taxes.

3. 6 per cent. interest on investment.

4. Annual cost of maintenance.

5. Annual deterioration.

6. Sinking fund annuity.

The sum of these items equals the total annual cost of operation, to which should be added from 2 per cent. to, perhaps, 4 per cent profit, and the grand total will be the total allowable income, or "Fair Return" on the plant. If deterioration is, as in the above case, deducted in the annual expenses, its amount must also be deducted from the cash value of the works, and

consequently will reduce the capital invested and the consequent interest account by this amount.

Mr. Sherrerd:—The last speaker has placed the depreciation of water plants at a very low figure. In my judgment, there is another element which enters into the depreciation of water pipes to which he did not refer, which should be considered in arriving at the value of a plant, more especially the distribution system; and that is the decreased carrying capacity of the pipes. This in my mind forms the larger part of the depreciation of the system, particularly where you are appraising the value, because while we may take it for granted that the pipe itself will last perhaps for a hundred years, yet its serviceability and utility to perform the functions for which it was originally laid will not last one-half of that time. I think most superintendents will agree with me in saying that particularly in the larger cities, it is necessary to relay street mains and supplement the distributing systems in order to maintain the efficiency of the fire service, and even for the growth of the ordinary consumption. In considering this question recently, it occurred to me that some measurement of the decrease in the carrying capacity of the pipes should be used as a basis of depreciation. In 1898 we made a measurement of the flow of water through a four-inch pipe which had been in service twenty-eight years. It was badly incrustated with tubercles. We measured the flow at ten minute intervals through a four-inch meter, and got a flow of 26.4 cubic feet per minute through the pipe. Afterwards we cleaned the pipe by means of scrapers somewhat similar to flue cleaners. These were pulled through the pipe by a small cable to which a horse was attached. The pipe was closed behind the scrapers and the water pressure turned on. The scrapers were pulled about ten feet at a time and then the water allowed to wash out the detached deposit until the entire stretch of pipe of about six hundred feet in length was cleaned, and well cleaned. The flow was then measured and found to be fifty cubic feet per minute. Figuring this backwards would give a

decrease in carrying capacity of about $1\frac{3}{4}$ per cent. per year. I believe the depreciation, even in value, when the incrustation and deposit are extensive is all of this amount, and in addition, the rust on the outside of the pipe and the effect of electrolysis also decrease the value, besides other conditions which require renewals, so that particularly the four-inch and six-inch lines become unserviceable and have to be replaced. It often occurs that you have to replace water pipes in forty years that might be good to supply water to houses, but would not be serviceable for fire protection. From this view of the case, I think the depreciation should be considered somewhere between $1\frac{1}{2}$ and 2 per cent. per year on the general distribution system. The pipes can be cleaned, but the cost and interruption to use is an important item on pipes which are laid under pavements and where there are many connections, as the house services are more or less blocked by the cleaning process.

Mr. Mead:—I wish to say that the previous speaker entirely misunderstood the position taken by me in the remarks previously made. There was no intention of making a general estimate of the average life, or even the average depreciation of water pipes. The example was simply an illustration of the application of a principle. The speaker recognizes that local conditions under all circumstances must govern, and the length of life assumed, and the percentage mentioned simply illustrates a principle which may be applied in any case, and which should be applied only with a consideration of the other local conditions.

The length of life and consequent depreciation is only one item for valuing a pipe system. The condition of the pipe with regard to its other relations may be of equal or even greater importance. If partially or wholly filled by corrosion or sediment the fact should certainly be considered.

The fact that a system is outgrown and must soon be replaced as a whole or in part, may also become important, or the fact that leaky joints or other defects require a large outlay for maintenance will surely influence values. No fact in re-

gard to any item in any appraisal should be ignored, but each and every fact should be carefully considered and their weight in valuation conscientiously determined.

Mr. Monjeau:—Mr. President, I was very much edified by all three papers read on this question of common interest. The clearness and the precision with which all these papers were thought out excited and held my close attention, and I have but one thing to suggest out of my old-maidish ways of thinking, and it is that my experience has led me to treat water works, in fixing a valuation upon them, very much as an average manufacturing business is treated for like purposes. I find that there ought to be, in order to be just, an estimate of depreciation in value of about 10 per cent. per annum. Of course there are other conditions. There is such a thing as the increase in value of a franchise, the increase in value of the holding, and these are two elements I didn't understand to be as clearly brought out in the paper as the other points. But you gentlemen have brought this matter of appraisal almost to a science in effect. That is the way I look upon the three papers that have just been read. If you don't term it that, it matters not, but, in fact, you have about established a science in the estimating of the value of water works, and my impression is that if you could establish the same criterion that we use annually in estimating the value of any manufacturing plant, you would come very close to establishing a rule, or a standard rather, by which we could measure current increase or decrease of value and, consequently, establish very closely the value of a water plant. I think it was Mr. Sherrerd, the gentleman from New Jersey, who made some remarks to which I wish to call attention. I remember considerable about what we called the "late unpleasantness" at one time. Now it has come to be a pleasantness to be forgotten, and we all meet here on this floor as Americans. The late unpleasantness has gloriously passed away and our united land is mightier and more glorious than ever. But in the city of Petersburg Va. or its vicinity, where, in 1864, we put in works, a few years ago I had occasion to look at one of the six-inch pipes then laid, and

also at a four-inch pipe. You could scarcely get a glass of water through the four-inch pipe in less than half a minute. It was thoroughly incrustated and almost completely full of tubercles. The rust was packed almost as hard as the solid iron itself.

Mr. Benzenberg:—In the valuation or appraisal of a water works plant a question which naturally arises refers to the probable length of the life of the distribution system. This cannot by a careful appraiser be assumed to be a given period of years without first inspecting the conditions that surround the distribution system, including the character of the water and that of the pipe, whether it has been carefully cleaned and thoroughly coated, in which case there is less possibility of its becoming tuberculated. Tuberculation, as is well known, is simply an oxydation of the exposed surface of the metal, which exposure is sometimes no larger than the size of a pin head. The character of the water also has a good deal to do regarding the rapidity with which tubercles may be formed on the interior pipe surface. If the character of the pipe or that of the water is found to be such that it will induce tuberculation, such will necessarily have an influence upon the length of life of the pipe or of the distribution system, and must, therefore, be considered in making the appraisal. The appraiser must also consider the proper amount of depreciation for any other part of the water works' fixtures, and this will vary with each feature of the water works plant, from the boiler, which perhaps is shortest lived, to the distribution or piping system, which perhaps enjoys the longest period of life. The length of life of each part of the plant must be established, then a sinking fund or annuity must be fixed which, when placed at compound interest, will at the end of the life of such part of the plant produce a sum sufficient to replace it. I cannot see how that theory, or method, can be in error. The only error that may arise would be a misinterpretation or a misjudgment in determining the probable length of life of the various parts of the water works plant. In the western cities very little tuber-

culation is usually found in any of the pipe because of the general hardness of the water; in the eastern cities, however, where surface waters are largely used, tuberculation is found frequently and developing quite rapidly, as was just mentioned in the case at Petersburg. There are similar cases in many other eastern cities. Any sediment that may be deposited in the water pipe of a distribution system should not, however, have any influence in determining the life of the distribution system, because such sediment can be removed by an intelligent method of flushing. The position taken in one of the papers as to what is contemplated by the term "franchise" may be subject to criticism. In many instances this has been interpreted as a license to do business. There are some differences of opinion upon that. Some contend that a franchise is simply and purely nothing more than a privilege given by a municipality to a water company to utilize the streets for the purpose of laying a system of pipes through which it may distribute and deliver water. It is not a license to do business, but a privilege to use the public streets, alleys and grounds. A good many spring water companies deliver in this city and in other western cities a supply of water for drinking purposes in a large number of houses where the residents feel that they do not want to use the public water supply for such purposes. Such companies do not require any franchises to do business. They conduct the business of selling and delivering water similar in manner to that of other business men in their line of business. They do not have to apply to the municipality to obtain a license to do business; consequently a franchise may perhaps be correctly interpreted to mean nothing more or less than simply the right granted by a municipality to occupy public streets, grounds and highways for the purpose of delivering water in the manner and form stipulated in that franchise. If that interpretation is a proper one, the value of a franchise, if the property is to be purchased by a municipality, is comparatively nothing. If the property is to be purchased by another company it represents all of the great value that such franchise possesses to the original holder, together with all the privileges it confers:

but in the event it is purchased by the city it is dispossessed of that certain element of value, and I think for that reason it is stipulated in many of the franchises or ordinances granting franchises by cities to water works companies, that no value shall be placed upon the franchise by the appraisers.

Mr. Monjeau:—Is that what you practice out here in the Northwest?

Mr. Benzenberg:—To a large extent; in very few ordinances in the Northwest are the arbitrators permitted to determine the value of the franchise.

Mr. Monjeau:—No such case has come to my notice so far. It is somewhat difficult to speak extempore and avoid the use of technical terms so as to make one's self easily understood by all, and, therefore, perhaps I have not clearly expressed myself. But the suggestion which I made, Mr. President, could be embodied by the gentleman in his splendidly wrought system of estimating and, in my opinion, it would simplify this manner of estimating the value of water works plants. Another thing. The value of pipe depreciates fast in our western cities. I have had occasion to notice that, having spent half my active life mostly west, operating more or less on each coast, but mainly in the central States, I have had occasion to see considerable that is of use now. In Topeka, Kansas, for instance, pipe laid one year became wholly too small in three years afterwards and had to be relaid with larger pipe to suit increased wants. Nor is that a very exceptional case. This increasing uselessness of pipe, as of other items in water works, becomes evident and can be considered as in any business plant.

Mr. Benzenberg:—I would like, if permitted, as the matter of the depreciation of distribution systems has come up, to make an earnest plea to all water works men who are engaged in the extension of distribution systems, or who are laying out new systems, that they give a little more attention to the method of cleaning, coating and testing of water pipes. The distribution system in a water works plant generally represents the largest item of expense, the largest amount of money expended, and less attention is paid to it than to any other feature of the works

simply because it is buried in the ground and out of sight; yet its ratio of depreciation is in many instances very rapid. It should, therefore, receive at the hands of water works men the same attention and the same consideration that is given to all other parts of a water works plant, such as the buildings, boilers and machinery. We exact greater efficiency and higher economy of operation from these, yet at the same time allow the distribution system, which covers a larger amount of the investment, to depreciate and deteriorate without any active effort to improve its conditions. A general effort should be made to insist upon a more thorough cleaning of the water pipes and a much better method of coating them, so that as thorough a protection against tuberculation as can be had in the present state of our knowledge upon the subject may be secured.

Mr. Monjeau:—Have you anything to suggest that has a practical bearing to that end?

Mr. Benzenberg:—Some cities are now requiring the cleaning of water pipes by sand blasts, whereby every particle of dust and dirt is so thoroughly removed that a white handkerchief rubbed over the surface will not collect a particle of dust. They also specify that the pipe be twice and thoroughly immersed in a proper composition, so that in the draining of the pipe no spots are left uncoated. I believe that such requirements will not and do not increase the cost of the pipe per ton very materially. In one case under such specifications a contract has been awarded which increased the price only one dollar per ton. I have no doubt that the benefit to the pipe is far in excess of the three or four per cent. increase of cost and may properly represent fifteen, twenty or even more per cent. of added value to the pipe in preventing tuberculation, which so seriously interferes with the flow capacities of the water mains in many cities of this country. I hope and believe, gentlemen, that you as members of this Association, will recognize the necessity for giving more study and attention than have hitherto been given to the water mains and the distribution system of the water works plants, and that this increased study and attention will ultimately result, as in my opinion it ought to, in the laying of porcelain

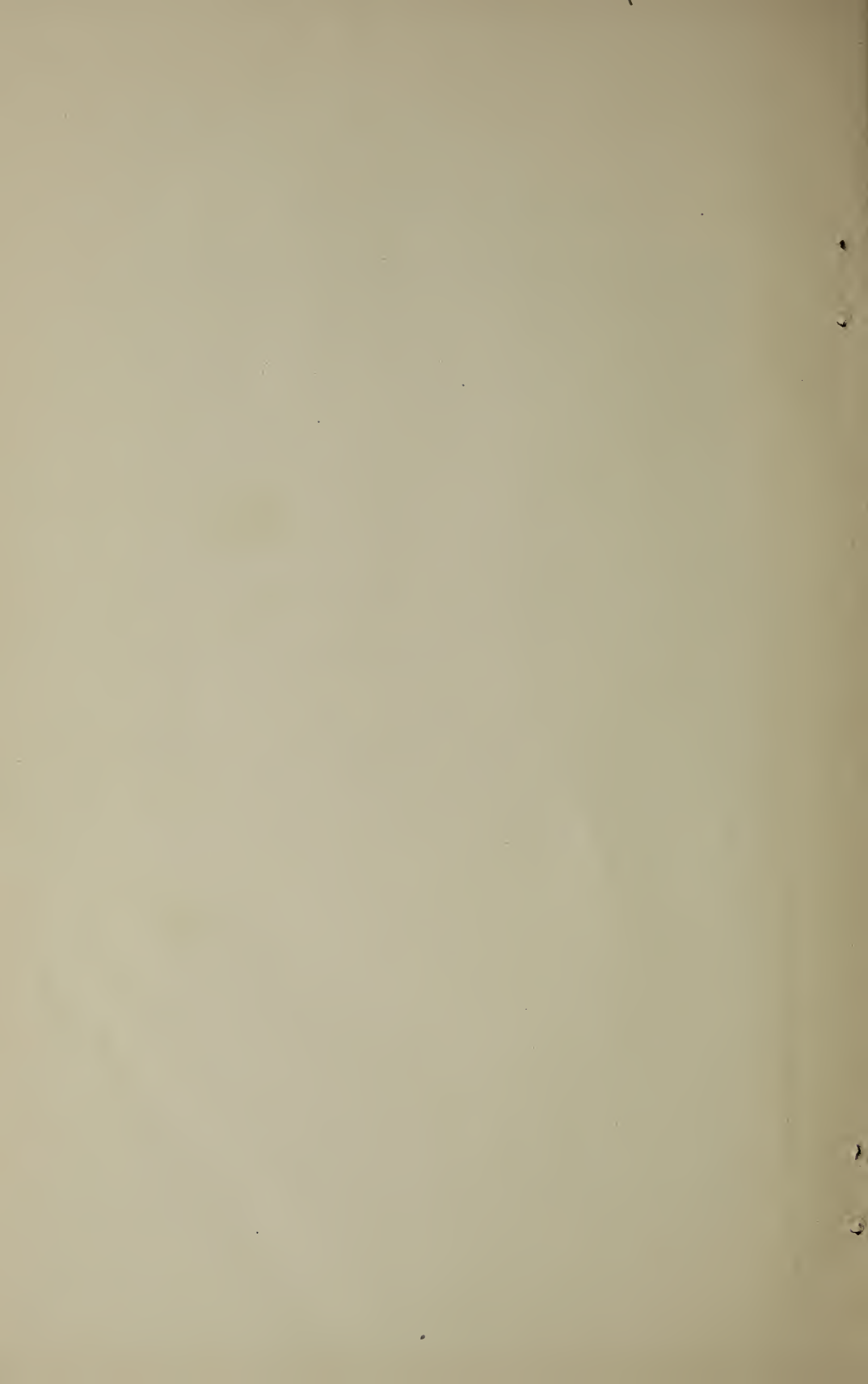
lined cast iron water pipe, which would afford the pipe the greatest protection and greatly increase its efficiency in the delivery of water without excessive increase of cost.

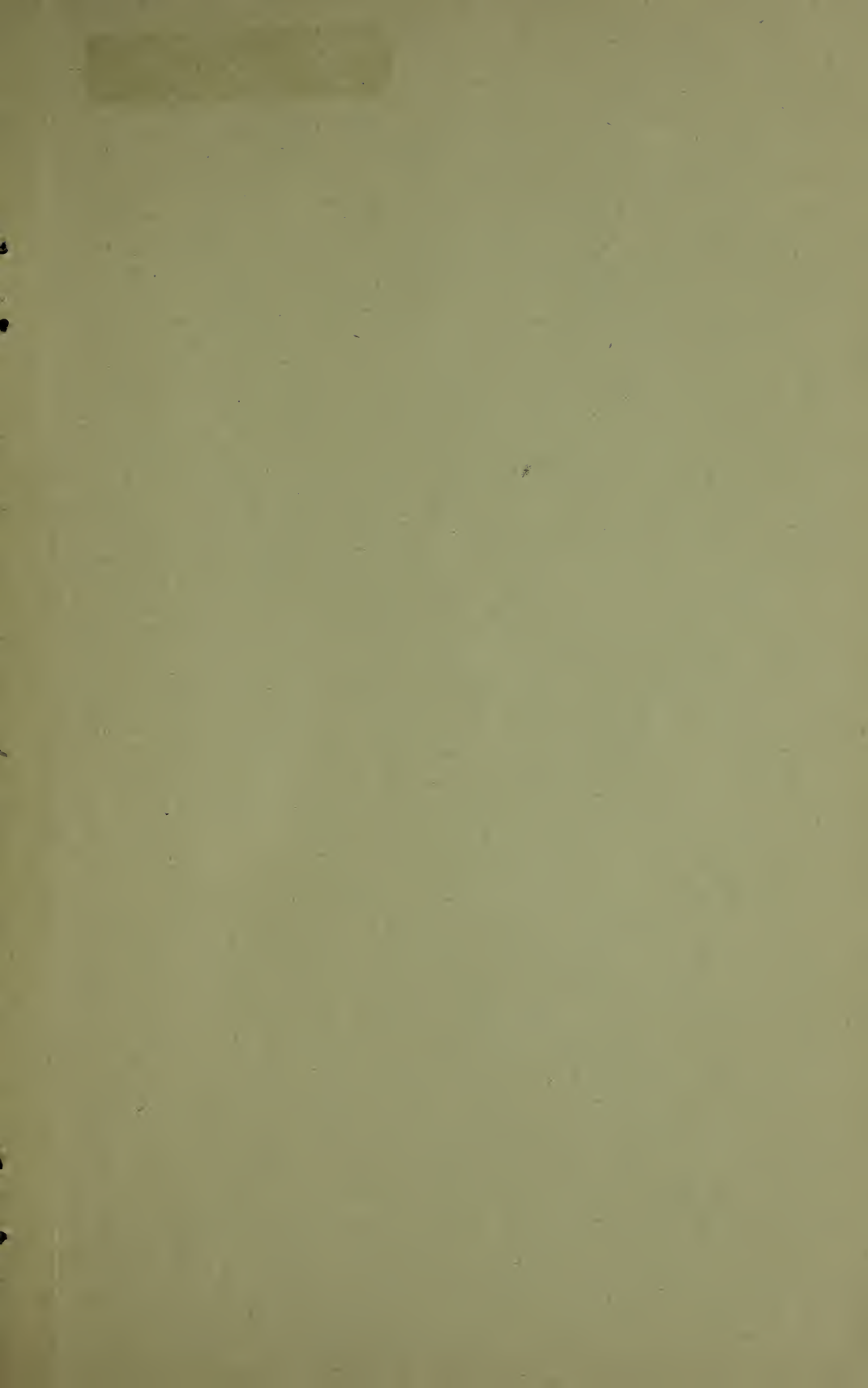
Mr. Lieber:—The three papers just read, together with the remarks made by those discussing them, have been particularly interesting to me, especially at this time. Now, in regard to the question of franchise, I would like to ask you, gentlemen, one question: in a case where a water company is granted a franchise to use the streets in order to properly carry on their business, and the city enters into a contract for a stated number of years to pay a nominal sum per hydrant, does the expiration of the contract for hydrant rental invalidate the franchise and forfeit the privilege of using the streets for the water mains? Can any of the gentlemen let me know definitely about this matter? I would very much like to know.

Mr. Monjeau:—It depends upon what State you are located in, sir.

Mr. Lieber:—I am from Missouri.

Mr. Monjeau:—In Alabama any change—and I know this to the sorrow of my bank account there—any alteration that you make in a contract after it has been signed by both parties to it, or all the parties thereto, will invalidate more or less the entire contract. There are several other States which have the same laws.







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